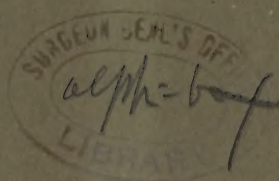


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N. M. L.

GUN SHOT WOUND.



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WITHIN THE

CAVITY OF THE THORAX.

Read before the Medical Society of the State of New York,
February 7th, 1860, and before the Albany Institute, Feb-
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the lungs and the pleura, not less is that danger which arises from preventing the free exit of serous or purulent effusions that take place by injuries to either of these organs—effusions that are not unfrequently so extensive as to exclude, by compression, every particle of air from the lung, and condense it into an almost solid substance, while by the same agency the action of the heart is gradually impeded, and at length forced from its normal position, until, by laws of natural philosophy, its pulsations are entirely suspended.

The object to be attained in the management of wounds extending into the cavity of the thorax, then, is that which shall accomplish both of these indications, namely: to prevent the admission of air into the thoracic cavity, and to admit, at the same time, of the free exit of effusion consequent upon such wounds. The following brief monograph affords a favorable illustration of the two points just stated.

F. J., an English artizan, aged 42 years, of eccentric sedentary habits, in good health, on the afternoon of November 5, 1859, in a state of mental excitement, produced by too free use of stimulants, pointed and discharged a revolver at his breast. Bringing hurriedly the instrument with his right hand, to his left breast, he gave it an angle outward, and the ball passed through his clothing only. His second attempt, however, was more effectual. I was at his bedside in an hour and a half after the incident, where I found him having bled, and still bleeding freely. His clothing was completely saturated in blood, his surface was cold, his appearance pale, his circulation rapid and almost indistinct, his breathing short and hurried, about forty respirations per minute, an occasional short cough, attended with sharp pain, and with each inspiration there was the sound of air rustling and gurgling through a wound that evidently reached into the left lung. Every appearance indicated the patient to be *in articulo mortis*.

In this condition he steadily and positively refused every persuasion to allow an examination or dressing of the wound. After informing him of his perilous condition, at which he was not in the least disconcerted, and having ordered the free use of stimulus as long as he could use it, I had no alternative but to leave him to die in the manner of his own choosing.

On Sabbath morning, at 7 o'clock, twelve hours later, I was again called to the patient. He had revived under the use of "hot brandy slings," but his breathing was so intolerable in the recumbent position, that he was assisted into a chair, where he had passed the last few hours. Stimulants were continued during the day, for it was not until the evening visit that he would submit to the examination of the wound. At this time, twenty-five hours after the incident, I found, upon removing the clots of blood, an orifice in the left breast, an inch to the right, on a line with the left nipple, where the ball had entered. It was sufficiently large to admit my index finger, and this I passed carefully between the rib which the ball had divided, into the cavity of the thorax until the point of my finger rested upon the pericardium, so that each pulsation of the heart seemed in direct contact with my finger. The muzzle of the revolver was brought directly

over the heart, and in a perpendicular line would have discharged its contents into that organ, but as in the first instance, bringing it in contact with the breast, by the right hand, naturally gave the weapon an angle outward, and the ball passed obliquely through the muscle and rib, without the pericardium, into the substance of the lung, where, possibly, it became imbedded and still remains. I felt nothing of the ball, which was oblong (of the Minnie rifle shape), and had divided the rib without leaving spiculæ. Abandoning the hope of extracting the ball, I cleansed the wound, and drawing its lips together, applied two or three thicknesses of Husband's isinglass adhesive plaster. It seemed most happily adapted to the exigencies of the case; soft and pliant, yet adhesive, it acted as a valve. With each inspiration it collapsed and closed the orifice. With each expiration the bloody serum oozed from under it without causing its detachment. From the third until the seventh or eighth day after the occurrence of this wound, an offensive bloody serous effusion was poured forth in large quantities, saturating the thickly folded compress and bandage. The cough continued, with occasional bloody expectoration—an evidence of the injury the lung had sustained, and the pulses were one hundred and twenty per minute. The cough was quieted, and rest procured by the free use of morphine, while nourishing diet was early and continuously directed as a means of sustaining the demand that must inevitably be made upon the patient's strength. A few days later and the secretion became purulent and was very profuse. I still apprehended a fatal result from the extensive changes such a condition must impose upon the lung and the pleura, although my patient, with perfect mental composure, occupied two or three hours daily at his lithographic etchings after the eighth day.

The air did not, at this time, permeate the apex of the lung, and percussion gave a dull flat sound, while efforts to expand the lung, by a full inhalation, imparted no costal motion. At the end of two weeks, the cough, which had been attended with an occasional purulent expectoration, nearly ceased.

At each dressing, I endeavored to empty the thoracic cavity of the fluid that had accumulated below the level of the orifice. In order to accomplish this, the patient inclined forward, to a position almost horizontal, when, by an effort of coughing, the fluid would be ejected. On the 19th November I introduced through the wound a silver catheter, carrying it carefully downwards into the thoracic cavity, and inclined the patient forward, when a considerable quantity of fluid passed through it. I felt each pulsation of the heart against the instrument, as I had done against my finger, on a previous occasion.

November 23d, eighteen days after the wound, the secretion was greatly diminished, the patient was daily gaining strength, the circulation had gained in force, and lessened in frequency, to ninety per minute; and a healthy granulation had begun about the orifice. I again introduced a flexible catheter, which dipped into the cavity, and with a glass syringe, (the piston of which was well fitted) adapted to the end of the catheter, the

whole to act as a suction-pump, I endeavored to obtain a complete evacuation of the fluid.

On the 8th December, the rib had united, and the wound closed, so that I could no longer pass a small-size catheter through it. The secretion had become only trifling in quantity, the patient rapidly gained in weight, his breathing became more normal, and percussion above the lower lobe revealed a clear, approximating to a natural, sound.

The patient was discharged, with the wounds healed, on the 21st December, forty-six days after the occurrence; he had at that time, however, performed his usual labor for nearly three weeks. His recovery is perfect. He has suffered no pain or inconvenience, by which the location of the ball could be exactly indicated.

In the management of this case, I had distinctly in my mind the testimony elicited at a legal investigation, occasioned by the death of a man who, in an affray, received a punctured wound, by a dirk knife into the thorax, and died about the twentieth day afterward.

The post mortem examination revealed more than two quarts of seropurulent effusion within the cavity, and the lung, which was otherwise uninjured, so collapsed and compressed by the fluid as to entirely exclude the air. The heart was also crowded from its natural position by the encroachment of the fluid upon the space designed for it to occupy.

But my attention, in common with many of the profession, had been directed to the subject of wounds in the thorax, by the case of Banks, who was pierced by a bayonet, at a military parade in Hartford, Connecticut, on the 30th August, 1859, an account of which was published in the Boston Medical and Surgical Journal, of October 13th following,—just four weeks previous to the occurrence of my own case. The patient died on the sixth day, and in that instance also, there was extensive effusion, and the lung was compressed, as the autopsy proved, to a size not much larger than the hand. It is not my design here to discuss any of the points at issue in this case, which have given rise to free controversy already. If either of the cases are parallel with the one I have presented, the principles I have laid down, and the simple plan I pursued, will bear favorable testimony to each other.

In his "Military Surgery," Gurthrie, who was a distinguished surgeon in the British service, alluding to wounds in the chest, and those made by small balls, says: "In cases in which the external opening, or wound, does not communicate freely with the cavity of the chest, the principal danger arises from the inflammation of the pleura, ending in effusion, which, if not evacuated, leads to the loss of the individual. * * * * All the persons I have seen die from small balls, have died with the cavity more or less full of fluid."

With such testimony, the importance of evacuating the fluid, either by keeping the wound open, or by thoracis parecentesis, can hardly be questioned.

